PLANTAE ALPINAE NOVAE MEXICANAE: *SEDUM CHRYSICAULUM* (CRASSULACEAE)

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ABSTRACT

Recent explorations of the alpine-subalpine floras of northeastern Mexico have revealed several new species of *Sedum*. The most widespread of these, here described as **S. chrysicaulum**, approaches most closely *S. parvum* ssp. *nanifolium*, but is easily distinguished from the latter by persistent, pale yellow-green, dorsally sulcate leaves, petals 5.0 – 7.5 mm long, and a preference for habitats above timberline.

RESUMEN

Exploraciones recientes de las floras alpinas en el nordeste de México han dado luz a varias especies nuevas de *Sedum*. La especie mas ampliamente distribuida, **S. chrysicaulum**, aquí descrita, asemeja a *S. parvum* ssp. *nanifolium*, con la cual se distingue por hojas persistentes, verde-amarillentas pálidas, sulcadas en la superficie adaxial, pétalos 5.0 – 7.5 mm de largo, y por prefencia de habitats arriba de los límites arboreos.

Sedum chrysicaulum McDonald, sp. nov. (Fig. 1)

A *Sedo parvo* Hemsl. ssp. *nanifolio* (Frod.) Clausen caulibus infernis herbaceis foliis ellipsoideis dorsaliter sulcatis 5 – 6 mm longis petalis 5 – 7 mm longis et folliculis 4 – 5 mm longis differt.

Herbs perennial, cespitose, 3 – 7 cm tall, 2 – 20 cm wide, glabrous. Stems branching from base, ascending, 5 – 9 cm long, 1 – 2 mm in diam at maturity, yellow-green, glabrous, smooth; internodes somewhat longer in basal portions, 0.5 – 9.0 mm long; nodes occasionally rooting; roots fibrous. Leaves simple, sessile, narrowly ellipsoid, dorsally sulcate (flattened upon drying), 5 – 7 (-10) mm long, 2 – 3 mm wide, light green or rarely orangish, with occasional red spots, glabrous. Inflorescence in terminal, congested cincinni; flowers 2 – 8; sepals 5, broadly lanceolate, 4 – 5 mm long, 1.5 – 2.0 mm wide at base, pale green, coriaceous, glabrous; petals 5, erect, narrowly elliptic or lanceolate, 5 – 8 mm long, 2.0 – 2.5 mm wide medially, ca. 2 mm wide at base, yellow with occasional red-pigmented dots or longitudinal striations, glabrous; stamens 10, 5 – 6 mm long, terete, attenuate, ca. 0.5 mm wide in diam at base, filiform at apex, yellow; anthers ovoid, basally cordate, yellow; carpels 5, 6 – 8 mm long, 1.2 – 1.5 mm wide at base, yellow, glabrous. Fruit con-

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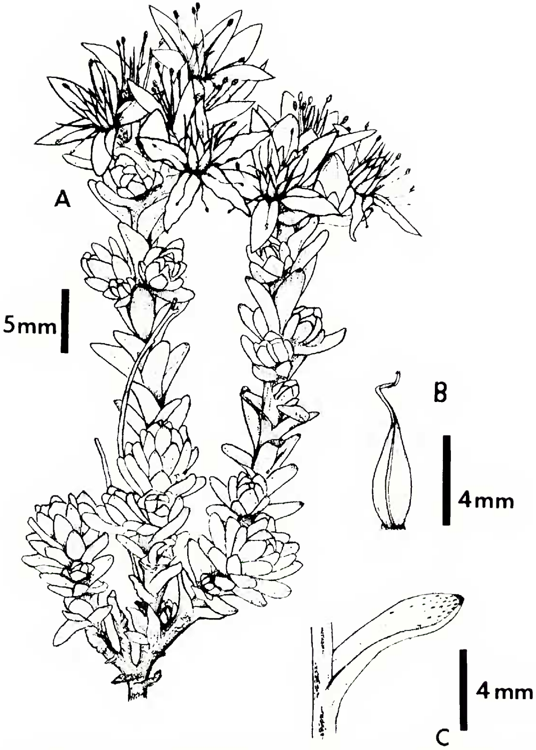


FIG. 1. Illustration of *Sedum chrysicaulum*. A. Growth habit. B. Mature follicle. C. Mature stem and leaf; note the red striations on the stem, and the red punctae on the blade.

sisting of 5 erect, free follicles, narrowly ellipsoid, 7 − 9 mm long, ca. 2 mm wide at base, often red-pigmented, glabrous, suture ca. 5 mm long, the style persistent, forming an attenuate apex ca. 2 mm long; seeds ca. 10, narrowly ellipsoid, 0.7 − 1.0 mm long, ca. 0.4 mm wide, brown, glossy, densely papillate.

TYPE: MEXICO. NUEVO LEON: Mpio. Rayones, summit of Sierra La Marta, eastern ridge-top in subalpine vegetation, ca. 3650 m, 24 Aug 1989, *McDonald & Mayfield 2556* (HOLOTYPE: TEX; ISOTYPES: MEXU, NY, UAT).

Specimens examined: MEXICO. Coahuila: Mpio. Arteaga, summit of Sierra La Viga, 3700 m, 22 Aug 1986, *McDonald 2099* (TEX); 24 Oct 1984, *McDonald & Gomez 1157* (TEX, UAT); Mpio. Arteaga, summit of Sierra La Marta, 3600 − 3700 m, 31 Aug 1980, *Hinton et al. 17977* (TEX); 4 Aug 1980, *Hinton et al. 17919* (TEX); 25 Oct 1984, *McDonald & Gomez 1242* (TEX); 22 Aug 1986, *McDonald 2136* (TEX). **Nuevo Leon**: Mpio. Galeana, summit of Cerro Potosí, 3700 m, 19 Jun 1966, *Gilbert 9* (TEX); 23 Aug 1984, *Lavin 4787* (TEX); 14 Oct 1970, *Hinton et al. 17303* (TEX); Mpio. Zaragoza, Sierra Peña Nevada, N of Picacho de San Onofre, 30 Nov 1984, *McDonald & Gomez 1298* (MEXU, TEX, UAT).

Three species of *Sedum* in the alpine-subalpine vegetation of northeastern Mexico have yellow flowers and relatively short leaves (<6 mm), suggesting close relationships with *S. parvum* Hemsl. (*sensu lato*; Clausen 1978, 1979, 1981). Beaman & Andresen (1966) adopted the latter epithet for all of the *Sedum* collections from the alpine flora of Cerro Potosi, Nuevo Leon, despite the morphological and ecological distinctiveness of these populations in relation to the type population of *S. parvum* Hemsl. ssp. *parvum* from warm and semiarid regions near the city of San Luis Potosí (Clausen 1979). All three of the above-mentioned alpine stoneworts appear to be undescribed (McDonald 1990), but two must await formal recognition pending a critical study of the entire complex (Nesom, in prep). The most distinctive and widespread of these, occurring in all seven timberline refugia studied by McDonald (1990; Fig. 2), most closely approaches in morphology the low-elevational *S. parvum* Hemsl. ssp. *nanifolium* (Frod.) R. Clausen. *Sedum chrysicaulum*, here described, shares the following features with *S. parvum* ssp. *nanifolium*: smooth stems, flattened and/or sulcate leaves that often bear distinctive red markings, and yellow flowers. *Sedum parvum* ssp. *nanifolium* is distinguishable from *S. chrysicaulum*, however, by green or reddish, basally lignescent stems that often branch distally, flattened leaves, ovate to broadly elliptical, 2.5 − 3.5 mm long, generally deciduous at the base of stems and congested in apical regions of the stems, petals 4 − 5 mm long, and follicles 2 − 3 mm long. This and other subspecies of *S. parvum* recognized by Clausen (1978, 1979, 1981) generally occur in relatively arid, chaparral vegetation or pine-oak associations of northeastern Mexico and western Texas (Clausen 1978).

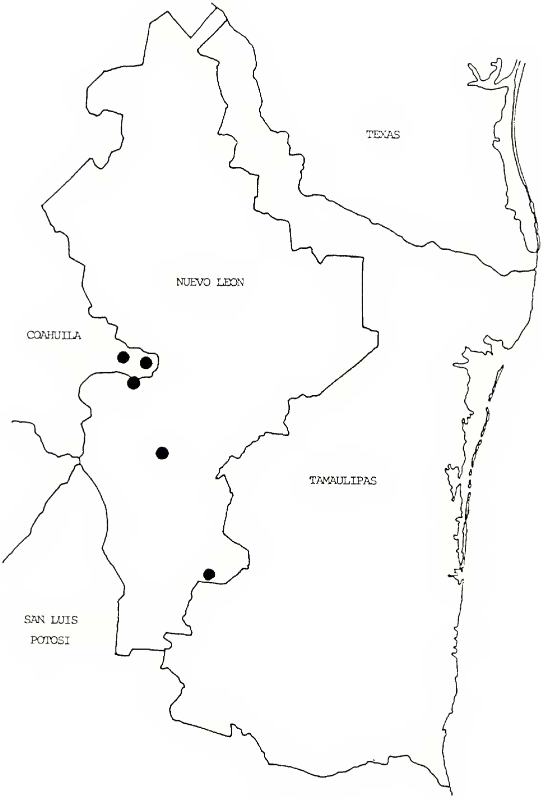


FIG. 2. Known distribution of *S. chrysicaulum*.

In contrast, *S. chrysicaulum* has herbaceous, light yellow-green stems that branch mostly from the base, leaves narrowly elliptic, dorsally sulcate (a feature commonly obscured by desiccation), 5 – 6 mm long, persistent and dispersed relatively evenly along stems, petals 5.0 – 7.5 mm long and follicles 4 – 5 mm long (Fig. 1). *Sedum chrysicaulum* generally occurs from 3400 – 3700 m in timberline and alpine vegetation of northeastern Mexico (Coahuila, Nuevo Leon, Tamaulipas; Fig. 2) as an associate of subalpine vegetation dominated by the genera *Arracacia* Bancr., *Castilleja* Mutis, *Erysimum* L., *Penstemon* Schmid., and *Senecio* L., and stunted individuals of *Pinus culminicola* Andresen & Beaman and *Pinus hartwegii* Benth. (McDonald 1990). Plants of *S. chrysicaulum* flower and fruit from June to October.

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REFERENCES

BEAMAN, J. H. & J. W. ANDRESEN. 1966. The vegetation, floristics, and phytogeography of the summit of Cerro Potosi, Mexico. Amer. Midl. Nat. 75:1 – 33.

CLAUSEN, R. T. 1978. *Sedum*, seven Mexican perennial species. Bull. Torrey Bot. Club 105:214 – 223.

__________. 1979. *Sedum* in six areas of the Mexican cordilleran plateau. Bull. Torrey Bot. Club 106:205 – 216.

__________. 1981. Variation of species of *Sedum* of the Mexican cordilleran plateau. Arnold Printing Corp., Ithaca, New York.

McDONALD, J. A. 1990. The alpine-subalpine flora of northeastern Mexico. Sida 14:21 – 18

__________. in press. Phytogeography of the alpine-subalpine subalpine flora of northeastern Mexico, in: T. P. Ramamoorthy, J. Fa, R. Bye, & A. Lot (eds.), Biodiversity of Mexico: its origin and distribution. Oxford Press, New York.